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EAU-BRINK

(10)

AN

ABSTRACT

OF THE

CASE AND OPINIONS THAT HAVE APPEARED
IN PRINT

FOR AND AGAINST

THE

EAU BRINK CUT;

AFFECTING

DRAINAGE, NAVIGATION,

AND

THE PORT OF LYNN.

By a MEMBER of the COMMITTEE.

1794.

ABSTRACT

OF THE PROCEEDINGS OF THE

COMMISSIONERS OF THE

LAND OFFICE



THE PORT OF LONDON

AND THE RIVER THAMES
FROM 1793 TO 1846
IN TWO VOLUMES
BY J. H. COLEMAN
ESQ. OF THE MIDDLE TEMPLE
AND BARRISTER AT LAW
LONDON: PUBLISHED BY
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1846

C A S E.

THE town of Lynn stands at the top of a bay, CASE. which formerly extended farther inland than at present, as appears not only from the banks that are still remaining across the marshes, but from cockles being found in every well that is sunk by the inhabitants; and the local situation of those banks shews, that a tract of marshes, several miles in extent, is now firm land, which was formerly a part of the sea. This being actually the case, it is manifest, that unless the upland waters were brought forward at the same time in a confined state, their outfall must, at the present moment, be so much farther from the sea, as the distance is between what was formerly and what is now the extremity of the embanked marshes. That no such confinement has taken place is very certain, and the reason is obvious; for the embanked marshes, lying between the fens and the sea, were the property of such persons as had no interest whatever in the fens; and the conservatorship of the rivers was vested by law in those who were too tenacious to admit of any participation of their powers. These facts do not apply solely to the neighbourhood of Lynn, but to all the fens, marshes, and rivers on that coast for seventy or eighty miles. The consequences have been felt and complained of for several ages; but it does not appear, that any person ever brought forward a precise plan for removing the evil, by the plain and rational method of confining the rivers through those marshes that have been gained at different times from the sea, until about the year 1720, when Mr. Kinderley published a scheme for restoring the outfalls of the Ouze, the Nene, the Welland, and the Witham rivers, all discharging themselves into the same arm of the sea,

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though

though at a very considerable distance from each other. Mr. Kinderley met with no one to patronize his great scheme, though in the year 1722 a new cut was made by him, under the patronage of the corporation of Bedford Level, for the improvement of the Wisbeach outfall only; but not having the authority of an act of parliament, the cut was no sooner made than destroyed at the instance of the *Merchants of Wisbeach*, and the country draining by that outfall continued for fifty years longer in an unprofitable state, during which time Mr. Kinderley's plan was at intervals the subject of controversy amongst the engineers of that day. He met, however, with encouragement at a distance; for at Chester, a work of the same kind was executed by him with so great a degree of success, as to induce the corporation of Bedford Level, in the year 1773, to obtain an act of parliament for empowering the commissioners of the North Level to re-execute at Wisbeach what had been done and destroyed in 1722, as before-mentioned. The work has been again done; and the consequence is not only a complete drainage, but an improved navigation, as well above as below the New Cut. The controversy, however, amongst the engineers, has continued to the present moment; but it is at length admitted on all hands, that the Ouze river, discharging itself at Lynn, must be confined by some means or other; and the *question at issue is*, whether that confinement will be best made by means of a new cut, as recommended by Mr. Kinderley, from Eau Brink to a certain place a little above Lynn, or whether through the present circuitous bay between Lynn and Germans, by staking out a channel to be obtained by fascines and low banks admitting the tides to flow over them? Indeed it is at last still farther admitted on all hands, that in point of drainage Mr. Kinderley's plan has an evident advantage, inasmuch as the upland waters being by his mode brought to the same point by their shortest course, will act with increased force and velocity upon the

the sands below; and it remains only to consider the arguments for and against the measure, so far as they relate to the navigation and harbour of Lynn; but those who have written against the measure are, in many instances, so contradictory to themselves, as to be perfectly nugatory; and, in other instances, their arguments are so blended with points of drainage, that it is very difficult to apply them with precision to that particular part of the business now under consideration.

O P I N I O N S.

I shall now state the opinions of different engineers against the cut, as extracted from their reports, *and circulated last year by the solicitor to the opposition*; and I presume, until other extracts appear, we may fairly infer they have brought forward every thing that can be stated to their own advantage.

Mr. Humphrey Smith, in 1729, said as follows:
 “ Most of the engineers that have wrote about drain-
 “ ing the Fens, are for confining the river from
 “ Eau Brink to Lynn, in a narrower compass than at
 “ present. Captain Perry, with his dove-tailed piles,
 “ which would cost £.30,000; Mr. Kinderley with
 “ his jetties, which might cost £.5000; others are for
 “ a new cut, which would cost £.36,000; all which
 “ methods must (according to my notion of matters)
 “ be the utter ruin and total loss of the port of Lynn;
 “ for the wide space between Germans and Lynn,
 “ gives room for the tides, and serves as a large re-
 “ ceptacle for a back-water to scour out their haven;
 “ which if confined by the methods prescribed by the
 “ aforesaid engineers, the silt and sand of the sea-water
 “ would then be dropped below the town of Lynn,
 “ which in time would raise such a bar, that their
 “ shipping could not get over.”

Mr. Humphrey
Smith against
the New Cut, as
quoted by the
opposition.

Reasons given
why Smith's
opinion ought
to have no
weight.

As to this gentleman I shall just observe, that what he says is erroneous upon the face of it, for Mr. Kinderley, and no other person, was the proposer of the new cut. Mr. Smith's purpose was to recommend the construction of reservoirs, in opposition to any other method whatsoever, which is a mode that is now universally exploded. To shew how little he is to be credited, in this very report in 1729, he states, that reservoirs of his contriving had been the means of draining the North Level, which is so contrary to the truth, that the North Level remained as before-mentioned, in an unprofitable state until the year 1774, undergoing a great number of drownings in consequence of breaches in the river bank. By the way, he likewise, in the same report, insists on the necessity of stemming the tide at Denver Sluice. Now the Lynn merchants, having neither adopted his reservoirs, nor subscribed to his doctrine concerning Denver Sluice, it is a little extraordinary that they should lay any stress upon a passage, in an opinion which was evidently meant to serve a purpose of the writer's own.

Labelye against
the New Cut,
as quoted by
the present op-
position.

Mr. Labelye, in 1745, said, "I think proper to
" mention in this place, that there are some large re-
" ceptacles for the tides made by nature, which have
" always the effect that one could naturally expect
" from them, as to clearing their mouths or entrances
" from silt; and the two instances which occur to me
" now, are the receptacles of Bradon, above Great
" Yarmouth, and the receptacle between St. Germans
" and Lynn; as to the former, I suspect that the di-
" rection of the river below Yarmouth, with respect
" to the setting of the tides of flood and ebb, may be
" one of the chief reasons why so great and convenient a
" receptacle, joined to a great deal of land-waters, does
" not clear the bar before its entrance, and I believe
" it far from impossible to find a remedy to that evil;
" but I have not made the necessary observations to
" enable me to say any thing more on that subject,
" besides that it is foreign to my present purpose: As
" to

" to the last, viz. that wide part of the river Ouze
 " between St. Germans and Lynn; the reason, in my
 " humble opinion, why it does not act so forcibly as
 " such receptacles do at Portsmouth, Plymouth, or
 " Falmouth is, that the tides are so remarkably foul
 " on these coasts, that the sea brings in more sand and
 " silt in proportion to the opening through which it
 " passes than in other places, which must be, and is
 " left below and above Lynn, and there remains more
 " or less in height and quantity; in proportion as there
 " are more or less land-waters joined to the ebbing
 " tides to carry it to sea again: nor can it ever be
 " expected that there should be deep water in that
 " receptacle and below Lynn, till the river Ouze is
 " restored to its former depth and current, the conse-
 " quence of which is; that though this receptacle is
 " even at present very considerable, being upwards of
 " seven miles in length, and about half a mile in
 " breadth, at an average, it is not filled till the tide is
 " considerably made, and contains much less water
 " than if it was clear from those sands; so that when
 " the tide has so far ebbed out at and below Lynn as
 " to be contained in one or few small channels, which
 " is the time that the back-waters are of greatest ser-
 " vice, the receptacle is already almost empty, or at
 " least does not contain a sufficient quantity of water to
 " produce so considerable an effect as might be ex-
 " pected; however, I am very clearly of opinion, that
 " such as it is, it is of considerable service to the port
 " and navigation of Lynn; and as to the several pro-
 " jects that have been made to restrain it into a rea-
 " sonable breadth, for example, so as to widen gradu-
 " ally from the breadth it has at St. Germans to the
 " breadth it has at Lynn, and no more, I believe it
 " practicable, and am of opinion at present that it
 " might be done for less money than opening through
 " the land a new river in a direct line between the two
 " places last-mentioned; I believe also, that the in-
 " land navigation from Lynn and upwards, through
 " such a cut, would be as easy and convenient, and

“ perhaps more so than in the present crooked course
 “ of the Ouze, and that it might be made of such a
 “ breadth and depth as to be sufficient to carry off the
 “ ebbing tides, joined with the greatest land floods that
 “ can pass through St. Germans bridge; but as this
 “ cut will certainly lessen the indraught of the flowing
 “ tide, which is very considerable in so large a recep-
 “ tacle, and the flowing of the tide thereby continued
 “ much higher than it would in a lesser cut or river,
 “ according to the first law of motion, by which solids
 “ or fluids once in motion continue in that motion
 “ till they are stopt by an external cause; and as such
 “ a new cut or river must certainly receive and con-
 “ tain still less water on every flowing tide than the
 “ present crooked receptacle, I am of opinion, and
 “ ever shall be till better reasons be given than any
 “ of those which I have seen hitherto, that such a new
 “ cut would prove of more detriment than service to
 “ the draining the fens, by its lessening one of the
 “ means of preserving a good outfall to sea, and pre-
 “ judicial to the navigation of the port of Lynn.”

To this I shall oppose a passage from the same
 writer, which *the solicitor to the opposition* HAS NOT
 THOUGHT FIT TO EXTRACT.

Labelye's argu-
 ments in favour
 of a straight
 Cut, left out of
 the quotations
 made by the
 present op-
 position.

“ The most material point in all cases of draining,
 “ is to procure and MAINTAIN a sufficient outfall
 “ for all natural or artificial rivers to deliver their
 “ land-waters, which is of such a consequence, that *all*
 “ *other cautions or works done within the land, will be of*
 “ *no service to draining,* THOUGH NEVER SO
 “ EXPENSIVE, *unless proper and sufficient outfalls be*
 “ *made and MAINTAINED.*”

The plan of
 embanking the
 rivers upwards,
 borrowed from
 Westerdike, a
 Dutchman, and
 opposed by
 Vermuden.

A plan of embanking the rivers upwards, through
 the Level, has been frequently alluded to in the course
 of this contest. This was borrowed from Westerdike,
 who gave no plan whatever for improving the outfall;
 and Sir Cornelius Vermuden, as quoted by Badenslade
 in page 46 of his History of the Fens, opposed it for the
 following

following reason: "A great inconvenience (says he) " would be on the south side of the Ouze, for by em- " banking the river on that side there would be three " or four levels, the one above the other, and all of " them would want fall in the winter time, and to lead " away the downfall of them, it must be carried by " tunnels underneath the three rivers of Mildenhall, " Brandon, and Stoke, and the upper level must of " necessity commit the waters thereof into the next, " and so into the lower, and this way the water must " go TWENTY EIGHT MILES before it comes " to the fall; and how the downfall should be brought " such a length without furcharging the drains either " in one or t'other level I know not. The level " would become surrounded, and so without perfection " from within."

The opposition have next stated an opinion of Mr. Smeaton, with what propriety will be best understood, when the reader is apprized that it was written not against the Eau Brink Cut, but against Mr. Elstobb's proposal of confining the river below the town, for the purpose not of benefiting drainage and navigation upwards, but in opposition to a scheme of Mr. Rosewell's for improving the harbour of Lynn; and this proposal was most justly reprobated by Mr. Smeaton. Further it may be necessary to mention, that Mr. Smeaton, a little before his death, signified his approbation of the Eau Brink Cut; as will be given in evidence if required.

Mr. Smeaton
unfairly quoted.

The next in order is an extract from Sir Thomas Hyde Page's report in 1775; after which follows an extract from a report said by the opposition to have been made by Mr. James Creassy, but which was really made by the same Sir Thomas Hyde Page, in 1777; and both of them, so far as they have any relation to the business in hand, together with a letter recently written by Sir Thomas Hyde Page to Sir Martin Folkes, have been completely answered in a small pamphlet

Passage from a
pamphlet of Sir
T. Hyde Page,
which is erro-
neously ascribed
to Mr. James
Creassy, proba-
bly to swell the
list of the oppo-
nents.

pamphlet lately published, intituled, "A Letter to Sir Thomas Hyde Page, in Answer to his Letter on the Subject of the Eau Brink Cut."

Elstobb quoted
against the New
Cut.

The next and last is an extract from a report of Mr. Elstobb, in 1778, which is as follows, "It cannot
" be supposed that in such an expanded channel, in
" which the water will flow from one so much nar-
" rower as the New Cut is proposed to be made, that
" it will keep to one certain passage, without dividing
" into some others, as it does in some measure at pre-
" sent. Thus its depth will be reduced, its power
" weakened, and according to the different force with
" which it acts upon different parts of the channel, and
" according to the different nature of the soil it acts
" upon, some places it will scour deep, the soil being
" driven out of such places will subside where the
" water acts with less force, and there form banks, and
" the state of the channel through the harbour will be
" much the same as it is at present. Nor will the
" state of the channel below it be any more benefited,
" for as that part of the channel expands to half a mile
" or more in breadth, the depth of the water in passing
" through it will be proportionably diminished, and
" what would have made a depth of about ten feet,
" in a confined channel about 220 feet wide, would
" there make a depth of only about one foot.

" From this it appears, that the quantity of tide-
" water carried up above Lynn harbour by means of
" the New Cut proposed, and the receptacles of the
" new Bedford river intended to be provided for it,
" will not return an ebb sufficient to make any improve-
" ment in Lynn harbour, the channel, or the outfall;
" if therefore the improvement of the outfall is neces-
" sary to the recovery of the levels, it does not appear
" probable that the plan now proposed will effect it.
" It is pretty evident that larger receptacles for the
" tide-waters must be procured than what Mr. Gol-
" borne has assigned for them, before such a beneficial
" effect, both to drainage and navigation, can be pro-
" cured;

" cured; though it is very clear to me, that so long as the
 " South Level continues unimbanked, and Denver
 " Sluice is suffered to hinder the free descent of the
 " waters of that level, and the land floods in the great
 " Ouze are brought down in a channel so improperly
 " situated as the new Bedford river is, that the improve-
 " ment of the outfall would afford very little relief to that
 " level. In respect to the improvement and recovery
 " of the outfall, it may perhaps be immaterial whether
 " the receptacles for the tides be in the South Level or
 " in the new Bedford river, provided that they are
 " large enough to receive a sufficient quantity of
 " water to scour out the sand-beds, which, for want of
 " a proper power and force in the ebbs, have, since the
 " erection of Denver Sluice, been raised and now con-
 " tinue to lie in it. I say, respecting the outfall, it may
 " be immaterial whether such a quantity is received
 " into the South Level or into the new Bedford river.
 " Upon other considerations there may be a consider-
 " able difference; by being received into the rivers
 " in the South Level, the navigation in all those rivers
 " would be much improved by the reflux through
 " them, their channels would, if properly imbanked,
 " be continually deepened, the land floods would be
 " sooner carried off, and the level would sooner be
 " relieved and entirely secured." In page 127 of the
 same pamphlet is the following passage:

" From these circumstances, and the violent agita-
 " tions which expanded surfaces of water are liable
 " to by the impetuous action of winds and storms, it
 " evidently appears, that in many cases confined and
 " properly imbanked channels have their preference
 " with respect to drainage, especially if they could be
 " continued to the outfall, and could deliver the de-
 " scending waters immediately into the deep ocean.
 " Where a narrow and more confined channel dis-
 " charges its water into a much more expanded and
 " wider one, through which they must pass to the out-
 " fall, if the quantity brought down by such a straight
 " channel is not sufficient to force its way through the
 " sand-

“ sand-beds, and such impediments as it may meet
 “ with in that wider part of the channel, the outfall
 “ must come into decay, and the drainage be ob-
 “ structed. In some such cases navigation may require
 “ more than may be absolutely necessary for drainage,
 “ for where there is an extensive maritime traffic car-
 “ ried on by a great number of large vessels made use
 “ of for exports and imports, as there are at Lynn, a ca-
 “ pacious harbour is required for their reception, and
 “ a wide as well as a deep channel to and from the sea ;
 “ not only that they may not be incommoded by the
 “ number passing, but that in case of contrary winds,
 “ they may make their passage up and down by the use
 “ of their sails, in that manner which the sailors call
 “ turning to windward, and without which conveni-
 “ ence they would be often interrupted and stopped for
 “ want of a fair wind.

“ Though a capacious channel may not be so neces-
 “ sary for drainage, it is very requisite for the purpose
 “ of a large maritime traffic; and such large and capaci-
 “ ous channels can never be maintained deep, with-
 “ out large and extensive receptacles for the tide-
 “ waters above them, to return powerful bodies of
 “ ebb, united with the freshes, through them. Con-
 “ fined channels have their advantages, by keeping
 “ the waters more united, and their forces more col-
 “ lected ; yet if they are not made large enough to
 “ admit and return a sufficient quantity of tide-water,
 “ so as to produce ebbs, when in conjunction with the
 “ ordinary course of the freshes, may be sufficiently
 “ powerful to maintain a deep channel through the
 “ wide harbour which they must pass to the outfall ;
 “ no benefit, either to drainage or navigation, can be
 “ received from them.

“ With respect to the advantages to navigation,
 “ which Mr. Golborne enumerates and expects from
 “ the new cut proposed, it must be allowed that de-
 “ ductions drawn from experience, are to be looked
 “ upon as more conclusive than bare conjecture ; and
 “ the

“ the opportunity I have had of making observations
 “ on the effects of the new cut, made under my di-
 “ rection, through the marshes and sands below
 “ Wisbeach, will in some measure enable me to deduce
 “ the effects which may be reasonably expected from
 “ the new cut intended.

“ The dimensions of that new cut being very small;
 “ in proportion to the channel which the tides filled
 “ below it, when they were wholly turned through it,
 “ they ran with such an impetuous force and rapidity,
 “ that the barges which they navigate within that ri-
 “ ver (which are much larger, and, being single, are
 “ much more readily managed than the trains of
 “ smaller boats made use of in the rivers about Lynn)
 “ were hurried through in such a random manner, as
 “ not to be capable of being steered or managed in
 “ any order, and when offered to be stopped by their
 “ anchors, their cables were snapped like packthread;
 “ the quantity of sand rolled through it, formed such
 “ beds in the wide channel above it, that in some
 “ places there was scarcely passage left for the barges;
 “ and several of them, being driven upon those sand-
 “ beds, in the latter part of the spring-tides were
 “ obliged to lie until the return of the next spring
 “ before they could proceed up to Wisbeach; until a
 “ land-flood happening, returned the soil through the
 “ new cut, cleared that part of the river of the sand-
 “ bed, and opened a free passage for the spring-tides
 “ they flowed higher up the river, and by an increase
 “ of the ebbs, the channel has not only been preserved,
 “ but much improved.

“ From these circumstances it may be reasonably
 “ inferred, that as the tides come in stronger at Lynn,
 “ and rise higher than in the upper part of the chan-
 “ nel below Wisbeach, the tide-waters filling so large
 “ a basin as Lynn harbour, and endeavouring to con-
 “ tinue their whole motion, a great part, by the open-
 “ ing of the new channel being directed towards it;
 “ will (by the smallness of its dimensions) be com-
 “ pressed

“ pressed into it, and compelled through it with so
 “ great a rapidity, especially in spring-tides, that the
 “ trains of small boats they navigate with in that river,
 “ either with or without horses, will be entirely unma-
 “ nageable, will run foul, or break from one another,
 “ swinging across the river be frequently overset and
 “ sunk, and they will for some time be obliged to wait
 “ the approach of high-water, that the rapidity of the
 “ current may be abated, before they obtain a safe
 “ passage through it; consequently it will be so far from
 “ being at all times a ready passage, that great and
 “ constant delays may be expected from it, and how
 “ long they may continue is not easy to determine;
 “ and besides the disadvantages to navigation by the
 “ interruption of the passage, there are other effects
 “ which may be reasonably apprehended from it, so
 “ long as Denver Sluice is left standing.

“ The acceleration of the motion of a great part
 “ of the tide-water in Lynn haven, tending towards
 “ the New Cut, and the rapidity of the current through
 “ it, will carry large quantities of silt into the upper
 “ parts of the river, which will plentifully subside in
 “ those parts of the channel which are now the
 “ deepest, and will soon fill them up to a level with
 “ the most shallow parts; as only a part of the water
 “ carried up to Denver Sluice will be received into
 “ the new Bedford river, and the rest will be stopped
 “ by it the whole time of the flowing of the tide, as
 “ it is now, and always has been since it was erected;
 “ the water, by the rapidity of the current below;
 “ being more copiously stocked with silt, the greater
 “ quantity will subside, the river in that part will begin
 “ to choke up again, which will by degrees increase;
 “ and unless that pernicious obstruction Denver Sluice
 “ be removed, and a free passage opened for the
 “ whole body of the tide-water to strengthen the
 “ power of the ebbs, the silting up of the channel as
 “ formerly may reasonably be expected, though per-
 “ haps not in the same degree; in vain therefore are
 “ the

“ the expectations of great advantages to the navigation from the New Cut, whilst Denver Sluice is standing; and in vain are the hopes of a perfect recovery, and a full improvement of the fens, until the levels are properly and sufficiently imbanked.”

The above was written after this man was dismissed from the services of the Bedford Level Corporation, for drunkenness and negligence; and at the very instant of time when Kinderley's cut was violently opposed at Lynn: Let this fact, and that of the opposition having left out of Mr. Elstobb's book, lately reprinted at Lynn, the following very strong passage in favour of a straight cut and a narrow indraught, be impressed on the mind of the reader, let his reasoning in both quotations be fairly compared, and I doubt not a candid decision, as to the degree of dependance which ought to be placed on opinions so totally opposite coming from the very same man; the passage is as follows:

“ It is certain that the quantity of flood-waters flowing up any two rivers of the same acclivity, is proportional to the capacity of the mouths or inlets of these rivers, and the velocity of the water at these inlets; if therefore the inlet of this new channel be made sufficiently capacious, and it be carried along with dimensions large enough to prevent obstructions, as the water in any period of the flood-tide will have a greater velocity at its mouth, than it will have in the present period, at its present entrance of the haven, so more in quantity will flow up during the time of flood, than now does; and as there will be no sluices nor other impediments in this strait cut to retard its progress, so it will flow up with the greatest freedom imaginable, to a much greater distance than at present, to the great advantage of the inland navigation.”

Conduct of the
opposition re-
specting Elstobb
and his writings.

Elstobb in fa-
vour of a
straight Cut,

Mr. John Golborne's Report.

In 1777, Mr. John Golborne was employed to take a view, and make a report of the Middle and South Levels, and to give his opinion on a plan for a general drainage.

This gentleman's opinion must be allowed to have particular weight, as an experienced and skilful engineer, of which the success of the works which he planned and executed in Scotland are an incontrovertible proof; he appears to have taken a very accurate view of the then state of the country, and describes it in terms which correspond too well with its present situation. "I have examined (says he, p. 6,) every part of them (*i. e.* the Middle and South Levels) and sympathize with the inhabitants in their distress. — "Look which way you will, you will see nothing but misery and desolation; go but half a mile from Ely, and you come to Middle Fen, a tract of sixteen thousand acres, given up and abandoned; if to Ramsey, there you find more than ten thousand acres occupied by the waters, and see houses without any inhabitants, and lands incapable of either pasturage or tillage." He has been called (though erroneously) the first proposer of the intended cut; he gives, however, the most peremptory opinion of its necessity, and pronounces, *that it cannot fail to give immediate relief to both these levels, and to lower the surface of low-water at least four feet at Salter's Lode, Old Bedford and Denver Sluices, and at the mouth of the New Bedford River.* Perhaps (says he) it may be asked, Cannot the old channel be deepened, by confining its course through the sands? But let *such Enquirers* consider the great expence that must attend works carried on in the tide's way, where more than half the time will be lost, being liable to many impediments and accidents from the spring-tides; besides which, in a work of this great consequence, the shortest course should be taken, as by diminishing the distance a proportional fall is gained, and under such circumstances *every inch is an invaluable acquisition.*

Though

Though any further extracts from the reports of engineers long since dead might be deemed superfluous, it would be an injustice to the memory of Kinderley, to omit his opinion upon this subject, or to give it in words less forcible than his own.

“ These objectors cite a passage from Van Wester- Kinderley.

“ dyke, viz. ‘ If the streams be divided you lose the river.’ But who divides the streams? We, by our

“ confining them by a short course, or you, by your

“ letting them run amongst the broad sands, where

“ the waters frequently make three or four channels,

“ and are always shifting and changing their courses,

“ as they do in the broad and crooked river between

“ Germans and Lynn. To whom then does this

“ charge of the Dutchman belong; not to us, for we

“ are for confining rivers in a certain due proportion.

“ And let the experience of our neighbours also

“ shew us the bad effects of wide indraughts; as par-

“ ticularly at Wisbeach, where the tides first come in

“ between land from Sutton Marshes to Terrington

“ Marshes, it is three or four miles broad. Does the

“ tide go the higher for its being so wide there? Quite

“ the contrary. If it did, how much in length must

“ it go? According to these people’s notions, it must

“ go higher than the tide at Lynn, whose indraught

“ is not half a mile; and yet, as they allow, it runs

“ in length thirty or forty miles, when the tide at

“ Wisbeach does not run much above the town. The

“ same bad effect of a wide indraught is at Fosdyke,

“ where the wide mouth has almost choaked up the

“ throat of that river, as Mr. Bateson expressed it;

“ a wide indraught, therefore, over broad, high,

“ spreading sands, is so far from letting the tide in, or

“ causing it to run up higher, that, on the contrary,

“ it keeps it out, the tides being so long before they

“ can climb over those high sands; and we may ven-

“ ture to say, that those high sands which lie in the

“ widest part of the present crooked course of the

“ river, between Lynn and Germans, which are

B

“ sometimes

Bad effects of a
wide indraught,
proved in the
case of Wis-
beach.

“ sometimes eight and sometimes ten feet high, are
 “ a much greater obstruction to the free admission
 “ of the tides, than a straight and deep cut from
 “ Eau Brink could ever possibly be, supposing the
 “ mouth of it to be made sufficiently large and capa-
 “ cious: the former is a real obstruction to the tides,
 “ but the latter would promote the free admission of
 “ them, as has been above sufficiently made to ap-
 “ pear.

Mr. Batefon's
 opinion cited by
 Mr. Kinderley,
 in favour of the
 New Cut.

“ Had those gentlemen consulted the Reverend
 “ Mr. Batefon, of Magdalen, who appeared in par-
 “ liament to give evidence against wide indraughts,
 “ and the promiscuous course of channels amongst
 “ broad sands, in the cause between Mr. Woolaston
 “ and the town of Wisbeach, he could have satis-
 “ fied them of the mischievous effects of wide rivers;
 “ for in the case which he drew up for Mr. Woolaston,
 “ which was printed and given to the members of
 “ parliament, he therein says, that it is a fatal error to
 “ have a river unconfined; and further, that it is no-
 “ torious, that so far as a river is duly confined, where
 “ the confinement is straightest, there the pressure is
 “ greatest, the stream the strongest and swiftest, and
 “ there consequently the channel must grind the deep-
 “ est; and he concludes with this maxim, that where-
 “ ever there are any navigable rivers, those concerned
 “ in them should always have regard to this: widen
 “ a channel, and you weaken its current; straighten,
 “ and you strengthen it; the first feeds and fills up
 “ the channel, the last grinds and deepens it; and,
 “ therefore, as the one will most certainly preserve, so
 “ the other will as surely destroy both navigation and
 “ draining.

“ And certainly what Mr. Batefon says must be
 “ right; nothing can be more rational than this, that
 “ the more confined the channel of a river is in pro-
 “ portion to its back-waters, the deeper it is; all ri-
 “ vers being in proportion to the reflux, and a pro-
 “ portionable confinement for the depth, and so con-
 “ sequently

“ frequently the swifter and stronger must the current
 “ be; because, when a great body or quantity of wa-
 “ ter is confined within a narrow room or compass,
 “ the greater weight it has to force its way, and so to
 “ grind out whatever sand or mud the tides may
 “ bring along with them from sea; consequently,
 “ therefore, the wider a river is, the shallower it must
 “ needs be, and the weaker its current; for, where
 “ waters spread and expand themselves, there is not
 “ that weight to grind out a channel which a river that
 “ is confined has; and, wanting that weight, they
 “ have not such a current, for want of which the sand
 “ or mud contained in them must of necessity subside,
 “ and lodge in places as it is carried along, having
 “ not a force or weight sufficient to grind it out.

“ Suppose, by one and the same equal power, you
 “ force a fluid through two glass tubes of unequal
 “ bores or diameters; supposing, we say, the force or
 “ power to be the same and equal, the velocity of the
 “ fluid in the smaller tube will be much greater than
 “ of that in the larger. But what need we have re-
 “ course to philosophical experiments; is it not ob-
 “ vious to common observation, that if a vessel of
 “ water be thrown down on a smooth and even sur-
 “ face or plane, where it may have room to spread
 “ and expand itself, it can make no current at all, but
 “ throw it down a narrow and straight channel, you
 “ will find it will have a strong and violent stream?

“ There remains but one objection more against
 “ the making a straight cut from Germans to Lynn,
 “ and that is, we have no examples at all, it is said, of
 “ rivers being straight; all the most famous rivers in
 “ the world are crooked; and it is true, rivers natu-
 “ rally are crooked, and it is a disadvantage for them
 “ to be otherwise in a high country, and at a distance
 “ from their outfalls to sea; but it is no disadvantage
 “ but an advantage, for a river to be straight in a flat
 “ level country, and near its outfall, especially if it be
 “ an outfall that is badly choaked and stopped up with

“ sand, as the outfall of the Ouze is. But besides,
 “ where have we any instances in the world of rivers
 “ which were cast up by art that are crooked? Don’t
 “ the Dutchmen in Holland make all the rivers and
 “ canals for draining their country straight? But cer-
 “ tainly this proposed straight cut below Germans
 “ would be so far from being at all ruinous or disad-
 “ vantageous, either to the navigation or draining,
 “ that the advantages of it with respect to both would
 “ be unspeakably great; and first, to the inland navi-
 “ gation and trade, with respect to which even Mr.
 “ Labelye himself owns, ‘ that the inland navigation
 “ from Lynn upwards, through such a cut, would be
 “ as easy and convenient, and perhaps (we say cer-
 “ tainly) more so than in the present crooked course
 “ of the Ouze; and that it might be made of such a
 “ breadth and depth as to be very sufficient to carry
 “ off the ebbing tides, joined with the greatest land
 “ floods that can pass through St. Germans bridge.’
 “ See Labelye, page 36.”

Labelye again
 cited in favour
 of a straight
 cut.

Mr. Kinderley states the advantages of this proposed
 straight cut with respect to trade and navigation, as
 follows:

“ 1st. There would be a safe passage for the boats
 “ at all seasons and in all weathers, every neap tide,
 “ without any danger from storms and shallows, as
 “ safe as is now above Germans; and as the author of
 “ the Remarks on Rosewell’s Scheme very rightly ob-
 “ serves, ‘ that prodigious great stop which the flood
 “ now meets with by striking against the South Marsh,
 “ and which occasions such strong and dangerous
 “ trains at the Ball and other places, would hereby be
 “ very much prevented.’ See page 10, in the origi-
 “ nal Report of Elstobb.

Elstobb again
 cited in favour
 of a straight
 cut, which pas-
 sage is likewise
 left out in the
 edition lately
 reprinted at
 Lynn, with the
 original date.

“ 2d. It would be certain, by fixing of the channel,
 “ so that the boatmen might keep their times, and
 “ every one might know what he had to do.

“ 3d. The passages would be more expeditious,
 “ since

“ since one tide probably would carry them up to Ely;
 “ and so dispatch would be advanced; for by this new
 “ straight cut, four miles of the present course would
 “ be saved.

“ 4th. It would be cheaper, by avoiding the ex-
 “ pence which the watermen are now forced to be at,
 “ for hiring men to assist them in high winds in their
 “ passage down to Lynn.

“ The advantages, by this new proposed straight
 “ cut between Lynn and Germans to the adventurers
 “ for draining the fens, would be these :

“ 1st. The channel would be certain, which now,
 “ as has been observed, is so liable to change and
 “ alter.

“ 2d. The channel would be deeper, by being con-
 “ fined within narrower bounds, and avoiding those
 “ above-mentioned broad sands which occasion its
 “ present shallowness; by this method there would
 “ be no obstruction to the indraught of the sea-tides,
 “ but it would be quickened, and in the return would
 “ also come with the greater velocity, and in the same
 “ course or channel that the flood comes, and so could
 “ have no soil lodge in the channel, as it always does
 “ where the flood and ebb take contrary courses, and
 “ where it is too wide.

“ 3d. A greater fall for the fen-waters would here-
 “ by be gained, and the great charge of engines would
 “ be prevented. Here would be a fall gained of seven
 “ feet more than there is now, and this seven feet
 “ would be dispersed into all parts of the river up-
 “ wards into the levels, and consequently would draw
 “ off the waters much lower, which would return with
 “ a greater velocity out of the level to carry back any
 “ soil the sea-tides may bring with them; and the
 “ waters being thus drawn off under the surface of the
 “ fens, they might then have earth near to make
 “ good all the banks for confining the fresh wa-
 “ ters in all the rivers through the level, which bank-
 “ ing, as we have before observed, we must always

" allow to be absolutely necessary. This method, by
 " first causing the river upwards to grind out the sand,
 " by the advantage of this fall, would prove effectual,
 " and perhaps the only rational one that can be thought
 " of, to prevent the Hundred Foot Waters returning at
 " Denver, a grievance which has been so greatly com-
 " plained of; and it is certain, there is no draining
 " but in proportion to the fall that is gained. This is a
 " natural method to recover the ancient depth. It is
 " very well known, that the chief thing wanting to
 " sure draining is, to have good outfalls; without which
 " all inward works, and banks, and endeavours to make
 " the freshes ride the sea-tides, are an endless labour,
 " which may make one wonder that so little care has
 " comparatively been taken about them. That coun-
 " try must be in continual danger of being lost and
 " overflown, where the river it drains into has no good
 " outfall; consequently, therefore, in order to the well-
 " draining of a country, the river it drains into must
 " of necessity be made deep; for where a river is not
 " deeper than the level, it is impossible in that case
 " there should be, without an immense expence, any
 " draining.

" 4th. The passage of the waters to sea would by
 " this means be more quick, by shortening their course;
 " and the breaking up the banks would consequently,
 " in some degree, be prevented, which is the safety of
 " the flat country."

Hodgkinson
 against the New
 Cut.

Mr. Hodgkinson is the only engineer in existence,
 who, it is presumed, can be resorted to by the opposition,
 and the force of his reasoning and engineering skill will
 be fully understood by the following passage taken from
 page 12 of his report: " I am informed that the
 " town of Lynn has been overflowed, in the time of
 " very raging tides, so high, that boats have been ne-
 " cessary to convey the inhabitants through the prin-
 " cipal streets and into the market-place. That these
 " inundations will be rendered more frequent and
 " more

“ more dreadful in their consequences, from the sudden check these raging tides will meet with in entering the New Cut, must be apparent to the meanest capacity.”

It must be a very mean capacity indeed that draws such conclusions as the above from the effects of the New Cut. Colonel Dodson, in page 16 of his book says, “ the tide has its bounds, and cannot rise higher than its centre at sea; and though it should be stopped, it will not rise higher by the thickness of one hair, than if it had never been stopped at all.” And Mr. Kinderley, page 95, says, “ it is impossible that water can rise higher than in proportion to the impulse upon the reservoir that feeds it; and what proportion can the waters which flow over these sands bear to the main ocean?”

Hodgkinson
confuted by
Dodson and
Kinderley.

The reader will no doubt recollect, that not long since the tide rose so high as to drown the gentlemen of the long robe out of Westminster Hall. But what does this prove, except that from some great cause in nature the tide rises higher at one time than another? A great part of this gentleman's pamphlet contains invectives against Mr. Watte concerning his levels, all of which will be answered by viva voce evidence, whenever the merits are discussed in parliament; and as to the rest, it is the echo of Mr. Elstob and Sir Thomas Hyde Page, both of whom have been already disposed of.

Another report was obtained by the town of Lynn, which bears date the 15th of February 1793, and is signed Joseph Nickalls; and it seems the author is since dead. De mortuis nil nisi bonum, is an old maxim which I must beg leave to adhere to in this particular instance, observing only, that the statements he has made respecting the levels, with a view of proving that the impediment to drainage is not in the wide part of

Nickalls against
the New Cut.

the river, afford the completest proof that can possibly be adduced, that the impediments are there, and no where else.

Recent reports
in favour of the
New Cut,

I must now state some extracts from the reports in favour of the New Cut, that have been made by engineers now in existence.

Mr. John Watte's Report,
21st April,
1791.

P. 4.

* A mile below Lynn.

P. 14.

By the report of John Watte, surveyor and engineer, then published, who was directed to take the fall, levels, soundings, &c. of the river Ouze in Norfolk, from Saint Germans bridge to the Crutch below Lynn haven, and to give his opinion respecting a cut formerly proposed by Mr. Kinderley, from Eau Brink, about three quarters of a mile below Saint Germans bridge, to a quarter of a mile above Lynn harbour, and what effect such cut would have upon the drainage of the lands draining into the river Ouze, *and how far it might prove salutary or detrimental to navigation up and down the said river, and to the harbour of Lynn*, states, that in consequence of such directions he proceeded upon the business in March 1791, and from Saint Germans bridge he took the soundings downwards *to the Crutch**, and found the water of various depths, from sixteen inches to fifteen feet. Speaking of the effect the cut would have upon Lynn harbour, he says, he could not conceive it would be attended with any of the dangerous consequences that *some* supposed; on the contrary, that it would be of use thereto, if the waters coming through the cut were properly pointed down the channel, through the harbour, and artificial means used to assist them, by erecting jetties, &c. at proper places; by such means there would be a great probability of bringing the channel by the town at the distance desired, and of making the same fall down to the Crutch in nearly a straight direction. In treating of the danger which *some* suggested would arise from the current raising sand-banks across the channel, he says he cannot agree to such a supposition, the current
not

not being similar to a head of water held up by a sluice, for a scour only, which, when let off, for want of a continued back-water, often produces the effects alluded to, of blowing deep holes or pools just below the outlet, and by expanding and growing weaker, as the distance increases, lets fall again those particles of sand and soil it is surcharged with, and forms bars or banks; but in this instance the waters through the proposed cut would have a different effect, by shortening (the length of) the indraught of the tides, and reducing the low-water-mark; the tides therefore would flow much quicker, consequently higher up the rivers, than they now do by several miles, and would form a deep and large column of water, descending upon every ebb with great force by the time it reached Lynn harbour, which would continually scour the bottom of the channel, and carry off those particles of sand or sediment that might be deposited by the tide during its flow

Mr. James Golborne, pursuant to an order then made at a public meeting of the country interested in the proposed scheme for making the cut from Eau Brink to Lynn, by which he was directed to report his opinion, *as to the advantages or injuries that would attend the making of the said cut, as to drainage and navigation*, says, that the river or harbour opposite to Lynn was then in a much worse state than in the summer 1777, when it was viewed by himself and others; and that the principal part of the defects in that harbour arose by the ill-directed course in which the waters from the country above discharged themselves into the harbour, and by the great expansion of the river above it, and proposes as a remedy, first, to confine the channel to a proper breadth above Lynn, to collect together all the reflowing waters, and to cause such water to fall into the harbour by a confined and well-directed channel, which would constantly discharge at the last quarter's ebb a sufficient quantity of reflowing waters to prevent an accumulation of silt, &c. from subsiding in the harbour.

Mr. James Golborne's Report,
16th June 1791.

P. 11.

P. 12.

He

He further says, that bringing down an additional column of water in one confined and well-directed channel, under the protection of well-formed banks, situated at proper distances, and composed principally of the best materials that nature can bestow for the purpose of resisting the violence of tempestuous winds and tides, with proper forelands, between such banks and the river, and that column of water being not less than five feet deep and thirty miles in length, and descending in the last quarter's ebb, when the current in the channel is quite languid, and nearly stagnant in many parts, owing to the inequality of the depth of such channel, by which all its power of grinding down the bottom at the parts most required is feeble, and nearly lost, such a column of water, so directed and acting, could not fail of operating in a degree highly advantageous to the navigation above Lynn, highly advantageous to all the country above that port, *and particularly advantageous to the port and harbour of Lynn; for it is a well-known fact, that a brisk current at the latter end of the ebb is more effective in grinding down and maintaining a good and deep channel, than it is at any other part of the ebb besides, because it then, by being reduced within certain bounds, will operate more forcibly, and may (if required) be assisted more easily, and its effects act and be felt more powerfully than in its present state it is possible to be.*

Mr. Robert
Mylne's Report,
26th Oct. 1791.

† 15 miles below
Lynn.

* Mr. Robert Mylne, in his report then made, being directed to view the line of the New Cut, and from the end thereof, through Lynn harbour, down to the Flag Buoy † in Lynn Channel, and also the country

* Mr. Mylne was, at the particular request of the Lynn merchants present at this meeting, directed to view the channel below Lynn, and it was then understood by the promoters of the cut, that he should be considered as an umpire to decide the matter asserted by Golborne, and denied by Hodgkinson; but the Lynn merchants, when they found that Mr. Mylne was not favourable to their objections, instead of submitting to his umpirage, increased their opposition.

proposed

proposed to be drained by that New Cut, and to re-
 port his opinion on the *good or bad* effects which might
 probably accrue to *drainage and navigation*, says, that
 he examined the lands proposed to be cut through, Page 29
and the harbour of Lynn, and took the soundings of
 the channel, and the rivers of Ouze and Grant, *from*
the Flag Buoy at the mouth of the navigable channel
through Lynn harbour upwards to Cambridge, and is of
 opinion, that a straight cut from Eau Brink to Lynn,
 would have the good effect of carrying away the wa-
 ter above Saint Germans more readily and more ra-
 pidly. And he says, that, "by confining the return- Page 29
 "ing tidal waters in time of great land-floods, com-
 "bined with southerly winds, their power would be
 "directed to the deep water of the Crutch Pool, and
 "from thence, having obtained a straight course thus
 "far, *it would probably open once more the safe eastern*
 "*channel along the Norfolk coast*; that the corporation
 "of Lynn should perform this, if they see their own
 "interest, and MEAN the trade should increase at
 "that port; that the crookedness of the present chan-
 "nel from the Crutch to the sea, abstracted of the
 "question of soundings, is, on account of the particular
 "winds necessary to navigate it, of very great detri- Page 30
 "ment in itself. But nothing is done for Lynn harbour
 "to form or preserve it; all that has been attempted
 "is the establishment of moorings, and the marking
 "out the navigable channel to seaward, as it happens,
 "for the time being; that something ought to be
 "done, and Lynn ought to have the power and the
 "means of performing it, as it has the great though
 "not the only interest concerned in it; that there
 "was a time (about 1766) when the magistrates, hav-
 "ing its true interest at heart, consulted an eminent
 "artist how to apply a remedy to its defects, and it
 "was stated to him by THEM, *the preservation of ves-*
 "*sels lying in the harbour from the annoyance of winds*
 "*and waves, not only from the sea, BUT FROM THE*
 "*BROAD RIVER ABOVE THE TOWN, and also*
 "from

"from the raging tides that often accompany them, and drive their vessels from their moorings, was their desire and object, together with the preservation of the banks of the river, and more especially those near the town, from the action of wind and sea." They had advice; but nothing was done, saving the simple and obvious one of making the moorings and dolphins stronger; that in the lapse of twenty-five years the harbour is become more protected on the north or seaward quarter; that they have obtained what they wished in that respect, *by obtaining a greater evil, that of their channel along the Norfolk coast being entirely shut up, and the channel from the north-west being the only one capable of navigation.* The width (great and increasing as it is) of the harbour opposite the length of the town was complained of, and remedies of various kinds were prescribed; and in the great question of the proposed New Cut it was found, and then held by Lynn, *that the wide water above the town was a great and enormous evil, such as it now is, and that for the reasons above-mentioned; that to remove this subject of complaint, it is necessary to desert the old wide water, and direct the scouring powers of a more rapid and narrower water, in a line parallel to the births of the shipping, and not full butt against them, as at present; that the shipping would thereby be so laid in the stream as to have their births kept clean and deep by the current, and the vessels moored safe from its violence.*

Mr. John Rennie's Report,
16th Feb. 1793.

Mr. John Rennie, who was, at a meeting held at Cambridge, 1st of August, 1792, ordered to survey the river Ouze, and report his opinion as a professional man, employed by all parties, as to the effects the proposed cut might have upon drainage and navigation, says, in the first place he lays it down as a principle, which he trusts no man will deny, that the primary object in draining a flat country is obtaining a good and permanent outfall, and the shorter the course
by

by which the waters of a river are conveyed from the uplands into the sea, the more readily they will be discharged; and as no course is so short as a straight line, the nearer the channel approaches thereto the better; that the late ingenious Mr. Kinderley was very sensible of this; and in his excellent scheme for draining the fens, strongly recommends the proposed cut, by which the upland waters might more readily be discharged into the sea; that from a combination of circumstances, this scheme has hitherto remained dormant, by which the outfall has decayed, and much valuable land adjoining the Ouze, and in the south and middle levels, has been lost, and much more must follow, unless the outfall is improved; that the feeble efforts of the land owners on the district between Eau Brink and Lynn to preserve their banks against the flood and tidal waters has hitherto been ineffectual; that they have retreated backwards instead of preserving their ground, whereby the channel of the river has become wide and very crooked; that sand-banks and shallows constantly arise, and such is the nature of the soil, that they change their position almost every flood; thus the outfall is so obstructed, that the waters are in a great measure deprived of their scouring powers. He says further, that the neglect of the banks at West Lynn has occasioned the channel to increase in width, hence the decay of the harbour; that in a river serpentizing as this, the bottom becomes unequal in depth; in one place there is a deep pool, in another a shallow; for instance, at the Ball Pool, near King's Lynn, the waters of the Ouze act directly against the wharf, and have thereby dug a deep gully; having lost their force, they are returned to the opposite shore, crossing the middle of the channel near West Lynn Church, a little below which is another deep channel; returning again, a pool is formed at the Crutch; then, by taking a westerly course, they go to sea along the marsh-land shore, having entirely deserted the old channel along the Norfolk coast, which is allowed by mariners,

mariners, who frequent this port, to have been the safest and best entrance into the harbour.

Remedy.

He adds, "to remedy these evils, there cannot be
 " a more effectual way, than by directing the whole
 " water of the river Ouze, assisted by the returning
 " tide of the last half of the ebb, against the sand-
 " banks in the harbour, which will be completely
 " done by the proposed cut; that by this cut the flood-
 " waters will be brought quicker down from the in-
 " terior country, and the declivity of the bed of the
 " river, being greater in proportion to the length, the
 " tide and river water at the last half of ebb will have
 " a greater scouring power than before." He also re-
 " commends "jetties to be erected on the shore at
 " West Lynn, to project considerably into the chan-
 " nel, which, by narrowing the same, will continue
 " the scouring power of the water, at the last half of ebb,
 " further into the bay;" that he thinks "it likely the
 " east channel to sea may be opened, the tendency of
 " the waters being wholly directed that way." He
 " further adds, that "by scouring away the sand-banks
 " in Lynn harbour, the water will be deepened, ships
 " therefore of greater burthen will come to the town,
 " and ride in safety." He concludes with saying, "he
 " does not see a more effectual way of improving the
 " outfall, than by the proposed cut, which therefore
 " ought, in his opinion, to be supported by every
 " person interested in the drainage of such marsh-land,
 " the grounds adjoining the Ouze, the South and
 " Middle Levels, and in the *improvement of Lynn*
 " *Harbour.*"

Mr. John Hud-
 son's Report,
 3d Nov. 1792.

Mr. John Hudson, engineer, was desired to survey
 the river Ouze, &c. and report his opinion as a
 professional man, employed by all parties interested
 therein, as to drainage and navigation; and in his re-
 port says, "That the velocity of the water flowing
 " down the new cut will be so considerably increased,
 " that

“ that he has no doubt of its having a good effect in
 “ deepening the *harbour of Lynn*, and *scouring out the*
 “ *channel below to Lynn Deep.*”

To this great mass of professional opinions, may be added other very respectable authorities upon this subject.

Sir Joseph Banks, in the *Annals of Agriculture*, No. 107. page 187, says as follows:—“ At Wisbeach, in consequence of an ancient plan of Kinderley’s, an engineer, who lived seventy years ago, being carried into execution, the north Bedford Level was at once relieved from a head of water of near six feet, which had pressed upon it some hundred years, as the south and middle levels might be, was the cut from Eau Brink to Lynn, which the same Kinderley projected, also executed; but Sir Clement Edmunds’s maxim, that he who will do good by service must do it against the will of those who shall profit thereby, is now fully exemplified at Lynn, and was formerly so at Wisbeach, where Kinderley’s cut was once, after being executed, destroyed by a mob, and afterwards opposed to the utmost, till the beneficial effects of it were fully shewn.”

Sir Joseph
Banks, Bart.

Governor Pownall’s opinion, both as to the impracticability of amending the present channel, and necessity of a new cut, is extremely decided. “ Any attempt,” says he, “ to redress the interior crooked channel winding through the wide-worn basin of the ruined river, between Knight’s Gole and Lynn; any attempt to cut, and to keep open when cut, a straight channel through the loose sands of that basin, must be undertaken *at an enormous expence*, to try a very doubtful experiment, or rather to speak out, *one which undoubtedly will fail*; what engineer will undertake to *fix banks amidst these sands*? and if the currents are permitted to run from side to side, boring and undermining as they do the main
 “ banks,

Governor Pownall’s Memoirs

“ banks, what engineer, at any practicable expence,
 “ will undertake to *preserve the river from growing*
 “ *every day worse* ? What engineer, at any practicable
 “ expence, will undertake to *defend and preserve the*
 “ *country* ? The country will be *first ruined with effort-*
 “ *less expences, and finally overwhelmed* ; the drainage
 “ will be *obstructed, and finally lost* ; the navigation
 “ growing every day more uncertain, expensive, and
 “ dangerous, will *finally be choaked up* ; and, whatever
 “ reception this representation of events may have
 “ with the town of Lynn Regis, it will most assuredly
 “ find, that as these things come forward into event,
 “ *the sea will retire from the haven, and the harbour*
 “ *become a wash*. I could demonstrate this, not by
 “ reasoning, which will not be believed, but by facts
 “ now existing in the history of many rivers and ports
 “ in many different parts of the world, which, though
 “ once great maritime situations, are now dry, within
 “ a vale to which the sea never comes.”

“ *The quitting the old river in this crooked, ruined, ir-*
 “ *recoverable part of it, is become at last a matter of*
 “ *necessity* ; and the cutting a straight cut is the only mea-
 “ *sure left, by which to carry on a real drainage* ; by
 “ *which to maintain, for any great time longer, a practical*
 “ *communication of navigation between Lynn and the*
 “ *inland country, by which to preserve for ever Lynn itself*
 “ *as a great maritime town.*

“ So far as such a cut is a new sewer, through
 “ which the inland country is to be drained, so far (by
 “ the very principles and laws of sewers) should all
 “ who drain pay in proportion to it ; so far as it is a
 “ navigation, so far should all who navigate, or who
 “ are supplied through it, pay a certain tonnage.”

Having now stated the several opinions of those
 who have been consulted, and who have written on the
 subject, I shall leave the question to the candid consi-
 deration of those by whom its merits will be shortly
 investigated.

